

**Oroville Facilities Relicensing Efforts
Environmental Work Group
Draft Narrative Reports for PM&E Discussion**

Resource Action: EWG-79

Task Force Recommendation Category: 2

**Improve Wildlife Habitat within the Oroville Wildlife Area for Wetland and Riparian
Dependent Wildlife Species**

Date of Field Evaluation: February 2002 through March 2004

Field Evaluation Team: Dave Bogener

Description of Potential Resource Action:

This Resource Action evaluates opportunities to enhance wildlife habitats within the Oroville Wildlife Area (OWA) for wildlife species dependent upon wetland and riparian habitats through reclamation of barren dredger tailings.

Within the OWA about 615 acres of barren dredger tailings are present (DWR 2004a)). These barren habitats provide habitat for relatively few wildlife species and are barriers to dispersal of some wildlife species (DWR 2004a). California Wildlife Habitat Relationship (CWHR) modeling indicates that barren habitats within Butte County can provide habitat for a maximum of 82 species (DWR 2004a). Barren habitat is not essential for any wildlife species occurring in Butte County. Further, most CWHR species predictions for Butte County barren habitats are shorebirds which forage in exposed barren mudflats rather than gravel piles.

CWHR modeling indicates that freshwater emergent wetland habitats can support between 146 and 163 vertebrate wildlife species depending on the size or density of seral stages present. Valley/foothill riparian habitat can support between 218 and 255 vertebrate wildlife species depending on the size or density of seral stages present.

Conversion of barren gravel piles to a combination of freshwater emergent wetland and riparian habitat will greatly increase wildlife diversity on currently barren habitats, enhance opportunities for wildlife movement and dispersal, and improve recreational access.

The primary tool for implementation of this Resource Action is carefully directed commercial gravel harvest. Even utilizing commercial gravel harvest as a site restoration tool only small acreages of habitat restoration will be realized on an annual basis due to the vast quantities of materials to be removed at some locations

Nexus to Project:

This Resource Action does not have a direct nexus to Relicensing. However, the proposed Resource Action could be implemented in coordination with other Relicensing related Resource Actions including:

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- Side channel creation for salmonid habitat improvement
- Gravel infusion for salmonid spawning habitat restoration

Potential Environmental Benefits:

The principal environmental benefits of this Resource Action are greatly increase wildlife diversity on currently barren habitats and opportunities for removal of barriers to wildlife movement and dispersal. The potential exists to create additional habitat, increase habitat block size, or improve habitat connectivity for western yellow-billed cuckoo, a State listed Endangered species and a Federal candidate for listing. Creation of additional emergent wetland habitat areas would provide additional habitat or improve habitat connectivity for the State and Federally listed giant garter snake. Further, any creation of additional giant garter snake habitat could be used as mitigation in advance for project related habitat losses “take” in other areas within the project.

Existing commercial gravel harvest within the OWA predates reclamation planning requirements (Ward Tabor, DWR pers. comm.). Some post-harvest site conditions resulting from commercial harvest have generally been less than optimal from a wildlife management standpoint. This Resource Action would require that future post-harvest site conditions are optimal for natural revegetation and rapid conversion to productive wildlife habitats. Further, the contracts for future gravel harvest could be written in a manner which provides economic incentives to commercial gravel operators to modify past extraction areas to a more acceptable condition.

Potential Constraints:

This Resource Action was initially suggested by the California Department of Fish and Game (DFG), the land managers of the OWA. DWR retains the mineral rights within the OWA and implementation of this Resource Action cannot occur without coordination and cooperation between DFG and DWR.

The principal constraints to this Resource Action are impacts to Cultural Resources. The dredger tailings within the OWA are all that remain of the once extensive mining area. These tailing areas are considered a “Historic Mining District” potentially suitable for designation and protection under both State and Federal law. Prior to disturbance of these potentially significant historical resources an evaluation of significance relative to the State or Federal National Historic Preservation acts must occur.

Impacts to recreational uses are considered generally beneficial as the relatively steep unstable gravel tailings are not conducive to human access or recreational use.

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Gravel resources have value. Sale of gravel resources could provide revenues to the State of California and provide the Butte County area with an economical local source of material for future development.

Existing Conditions in the Proposed Resource Action Implementation Area:

Within the OWA about 615 acres of barren dredger tailings are present (Figure 5.4.1). These barren habitats provide habitat for relatively few wildlife species and are barriers to dispersal of some wildlife species. California Wildlife Habitat Relationship (CWHR) modeling indicates that barren habitats within Butte County can provide habitat for a maximum of 82 species (DWR 2003). Barren habitat is not essential for any wildlife species occurring in Butte County. Further, most CWHR species predictions for Butte County barren habitats are shorebirds which forage in exposed barren mudflats rather than gravel piles.

CWHR modeling indicates that freshwater emergent wetland habitats can support between 146 and 163 vertebrate wildlife species depending on the size or density classes present. Valley/foothill riparian habitat can support between 218 and 255 vertebrate wildlife species depending on the size or density classes present.

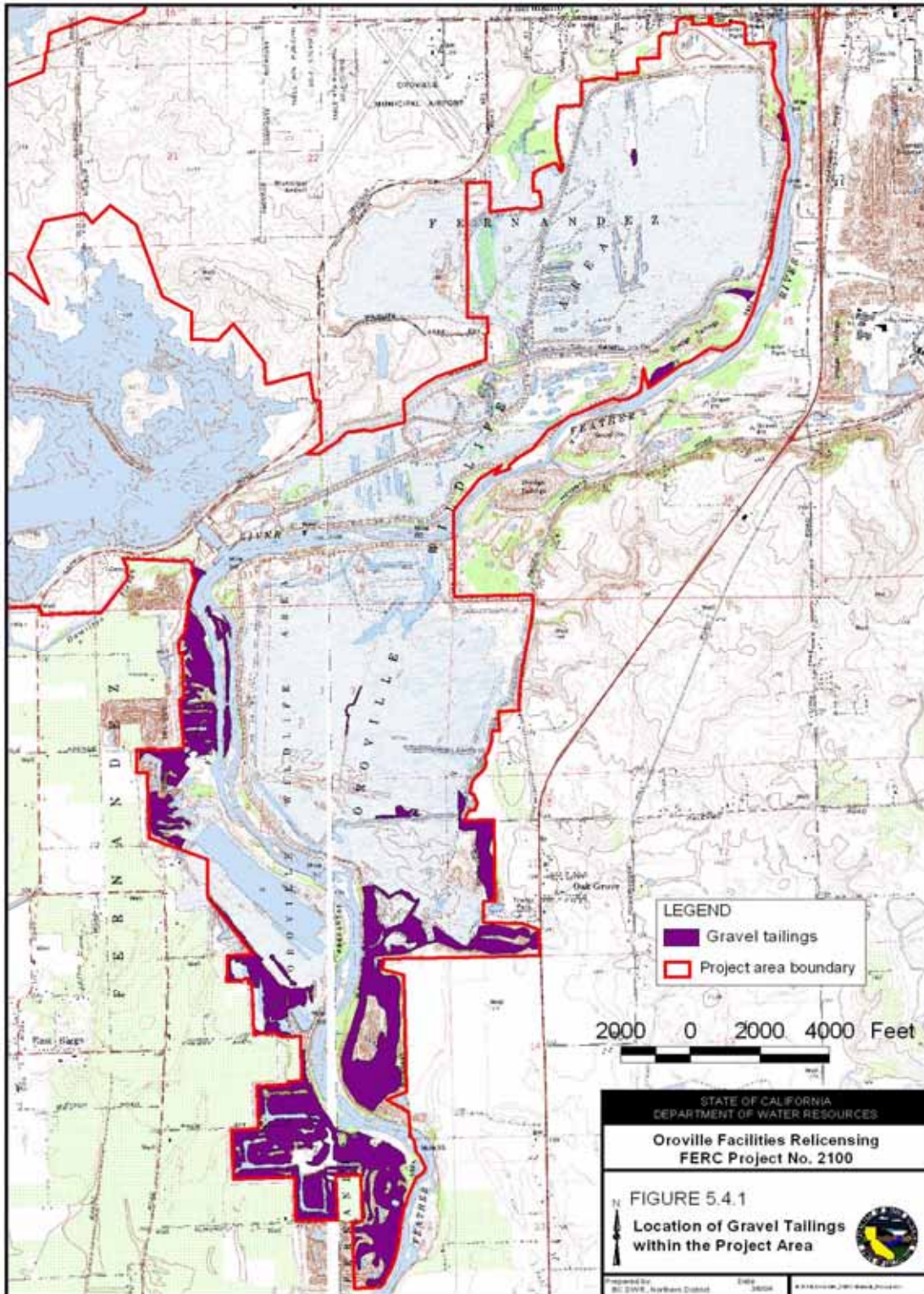
Conversion of barren gravel piles to a combination of freshwater emergent wetland and riparian habitat will greatly increase wildlife diversity on currently barren habitats, enhance opportunities for wildlife movement and dispersal, and improve recreational access.

Only commercial gravel mining interests have the ability to remove and dispose of the massive quantities of material stored within the OWA. To result in the desired future wetland or riparian condition, gravel removal would have to be carefully designed, monitored, and implemented.

Design Considerations and Evaluation:

Gravel removal would be designed to optimize natural vegetative recolonization. The key design considerations for successful implementation of this Resource Action are depth of gravel removal (relative to the groundwater table) and percentage of fine material remaining following gravel removal. Development of riparian habitat would require removal of overburden to a level about 1.5 to 3 feet above the July ground water elevation at each site. Ground water levels in the OWA closely correspond with river stage (DWR 2004b). Development of freshwater emergent wetland habitat would require excavation to 3 to 4 feet below the July ground water elevation at each site. These depths would optimize natural recolonization of aquatic and emergent wetland plant species.

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Retention of fine materials, (clay, silt and sand) is essential for rapid natural recolonization. Dredger operations normally produce conditions where larger cobble material is located on the top of the dredger pile with fine materials are located near the bottom. Gravel harvest contract specifications could be developed requiring retention of or capping the sites with fines to insure rapid vegetative establishment.

A reclamation plan for each site would be developed by DWR, in coordination with DFG, which identifies in detail the post gravel harvest condition relative to the depth and size of required fine material as well as excavation depths. Implementation of the reclamation plan would be included as part of the gravel harvest agreement/contract. Monitoring will be required to minimize overexcavation. Steep sided lacustrine habitat is not the desired future condition.

Materials harvest for initial project construction removed enormous quantities of materials from selected areas within the OWA. These large areas rapidly revegetated and are currently dominated by even aged cottonwood stands with highly variable amounts of shrub (willow) understory). This historic information indicates that conversion of barren gravel areas to riparian habitat can occur over large areas through natural revegetation processes.

Synergism and Conflicts:

This Resource Action could be designed in coordination with Resource Actions EWG 16B and/or EWG 92. Creation of additional side channel juvenile fish rearing habitat could require excavation of dredger tailings depending on channel location selected. EWG 92 involves placement of an average annual quantity of 10,000 cubic yards of gravel within the low flow reach of the Feather River for fish spawning substrate habitat restoration. The existing 615 acres of State owned dredger tailings could be used as a local, cost effective source for this material.

Uncertainties:

After 50 + years most dredger tailings remain unvegetated. Distance to ground water and lack of fine soils in the dredger tailings are likely to result in maintenance of this unvegetated condition over the next 50 years. Interpretation of historic air photos indicates that carefully designed and implemented gravel removal can rapidly result in the establishment of riparian and wetland habitats within the OWA. If the gravel harvest/removal is conducted based on site specific reclamation plans there is a high likelihood of success.

The principal uncertainties related to impacts to historic resources and the willingness of and ability of commercial gravel mining interests to meet the reclamation design criteria.

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Cost Estimate:

The principal costs associated with the proposed Resource Action involve those associated with development of detailed site specific reclamation plans, contract preparation, and monitoring of gravel removal.

Monitoring of historic gravel mining within the OWA indicate that due to the vast quantities of materials present in some locations it can take 5 to 10 years of commercial harvest to remove the required material at each reclamation site. Therefore, a reclamation plan and contract for an individual site would be required at 5 to 10 year intervals. Monitoring would be required on an annual basis initially. More frequent monitoring would be required as gravel harvest approaches final design criteria.

Estimated costs for development of an individual reclamation plan and associated contract/agreement are \$50,000 every 5 to 10 years. Annual monitoring costs should not exceed an average of \$5,000 per year. It may be possible to offset these costs through gravel lease fees.

Recommendations:

Use of commercial gravel harvest as a site reclamation/restoration tool to convert barren habitats to more productive and diverse wildlife habitats is likely the only viable long-term restoration option within the OWA due to the vast quantities of materials present.

This form of restoration offers potential benefits to wildlife species diversity, and to species protected under the State or Federal Endangered Species acts. Potential benefits to economic development in the project vicinity and improved recreational access may also occur.

It is currently unknown which, if any, of the dredger tailings could be harvested in compliance with State or Federal Historic Resource regulations. Further, it is currently unknown if commercial gravel operators have any need for additional supply or interest in cooperating with DWR or DFG to implement this Resource Action.

Literature Cited:

DWR 2003. Relicensing Study T4 Final Report
DWR 2004a. Relicensing Study T-1 Final Report
DWR 2004b. Relicensing Study W7 Final Report
Ward Tabor, DWR Legal, 2003. Personnel communication